Studied zooplankton size and population distributions in Lake Michigan.

EDUCATION

- B.S., Resource Ecology & Management, The University of Michigan
- M.S., Zoology, Michigan State University

TRACE
the science of compliance

phone 231.773.5998
toll free 800.733.5998
fax 231.773.6537

Trace Analytical Laboratories, Inc.
2241 Black Creek Road
Muskegon, MI 49444-2673
info@trace-labs.com
www.trace-labs.com

Statement of Qualifications

OVERVIEW

PJLA Testing
Accreditation# 1031

TRACE Analytical Laboratories, Inc. was founded in 1989 by Dr. William Schroeder, a veteran of service in the U.S. Navy that holds a doctorate in chemistry. TRACE is a full service Veteran Owned Small Business environmental laboratory, providing a complete range of environmental analyses and sampling services for our clients. These services include organic and inorganic analyses of water, soil, air, and hazardous waste. All of our routine services conform to strict methodologies from sources such as the US EPA, ASTM, AOAC, NIOSH, and Standard Methods.

TRACE has state-of-the-art analytical instrumentation using proven technology. Part of the Quality Assurance program is obtaining, maintaining, and calibrating equipment and instrumentation that is required to accurately and efficiently carry out analysis of samples as prescribed in analytical test methods. TRACE purchases or prepares appropriate reagents and standards for analyses. Whenever possible these reagents and standards will be ACS grade, spectroquality, or traceable to NIST standards. TRACE collects and receives samples under strict chain-of-custody procedures and adheres to proper sample collection and preservation techniques. The ability to define and defend the analytical process is one of TRACE'S primary Quality Assurance program objectives.

TRACE has substantial experience with servicing the analytical needs of a diverse client base. TRACE is accredited in accordance with the National Environmental Laboratory Accreditation Program (NELAP), the Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), and ISO/IEC 17025:2005. This gives TRACE the ability to provide analytical services to residential, industrial, engineering, and consulting clients, as well as local, state, and federal agencies, including the Department of Defense. TRACE is a Contract Laboratory for the Michigan Department of Natural Resources and Environment, and is Drinking Water Certified by the State of Michigan. Our laboratory continually supports regulatory programs such as CERCLA/SARA, RCRA, Clean Air Act, Safe Drinking Water Act, NPDES and the Clean Water Act.

TRACE's Client Services/Project Management Department works closely with clients and laboratory personnel to ensure all details and project specifications are accurately performed. The Client Services/Project Management Department can assist in project planning, including the preparation of Quality Assurance Project Plans (QAPPs). Working with clients at the onset of a project assures the results are more conclusive and cost-effective.

Personnel:

TRACE Analytical Laboratories, Inc., is comprised of experienced professionals with degrees in chemistry, biology, and environmental science. Our team has specialized training in laboratory operations and experience in the industrial workplace. Their expertise guarantees our clients the range and depth of scientific disciplines, technical specialties, practical experience, and analytical services needed to meet the objectives of today's complex industrial and environmental demands.

Appendix VII

List of methods under which Trace performs NELAC accredited analyses

Analyte/Analyte Group	Matrix	Analytical Method(s)
pH	Aqueous	SM 4500 H^+ B, SW 846 9040B, SW 846 9045C
Temperature	Aqueous	EPA 170.1
Turbidity	Aqueous	EPA 180.1
Non-Filterable Residue (TSS)	Aqueous	SM 2540 D
Total Dissolved Solids (TDS)	Aqueous	SM 2540 C
Residue (Total)	Aqueous	SM 2540 B
Calcium Hardness as $CaCO_3$	Aqueous	SM 2340 B
Total Hardness as $CaCO_3$	Aqueous	SM 2340 B
BOD/CBOD	Aqueous	SM 5210 B
COD	Aqueous	EPA 410.4
TOC	Aqueous/Solid	SM 5310 C / Walkley-Black
Ammonia as N	Aqueous	EPA 350.1
Ions by Ion Chromatography	Aqueous/Solid	EPA 300.0, SW 846 9056
Sulfides	Aqueous/Solid	SW 846 9030B, SM 4500 S^{2-} F & D
Ortho-phosphate as P	Aqueous	EPA 365.1
Total Kjeldahl Nitrogen	Aqueous	EPA 351.2
Total phosphorous	Aqueous	SW 846 6010B, EPA 365.2
Cyanide, total	Aqueous	EPA 335.4, EPA 9012A
Phenolics, total	Aqueous	EPA 420.2, SW 846 9065
Grease & Oil	Aqueous	EPA 1664
Alkalinity as $CaCO_3$	Aqueous	SM 2320 B
Conductivity	Aqueous	EPA 120.1
Total Residual Chlorine	Aqueous	SM 4500 Cl^- G
Ignitibility	Aqueous/Waste	SW 846 1010
Metals	Aqueous/Solid	SW 846 6010B, EPA 200.7
Metals	Aqueous/Solid	SW 846 6020, EPA 200.8
Mercury	Aqueous/Solid	SW 846 7470A/7471A
Low-Level Mercury	Aqueous	EPA 1631
Calcium, Magnesium, Potassium, Sodium	Aqueous/Solid	SW 846 6010B, EPA 200.7
Potassium, Sodium	Aqueous	SW 846 6020, EPA 200.8
Hexavalent Chromium	Aqueous/Solid	SM 3500 Cr B, SW 846 7196
Volatiles	Aqueous/Solid	SW 846 8260B, EPA 624
PCBs	Aqueous/Solid/Oil	SW 846 8082
Pesticides	Aqueous/Solid	SW 846 8081A
Herbicides	Aqueous	SW 846 8151A
Semi-Volatiles (BNAs)	Aqueous/Solid	SW 846 8270C, EPA 625
Explosives Residue	Aqueous/Solid	SW 846 8330B
Polynuclear Aromatic Hydrocarbons	Aqueous/Sold	SW 846 8310
TCLP	Aqueous/Solid/Waste	SW 846 1311
SPLP	Aqueous/Solid/Waste	SW 846 1312
Paint Filter	Solid	SW 846 9095A

APPENDIX

E EPA PLUGGING AND ABANDONMENT PLAN - EPA FORM 7540-14 (SEE ATTACHMENT Q)

September 5, 2017

Mr. Grant McHardy
Buckeye Partners, LP
One Greenway Plaza, Suite 600
Houston, TX 77046

Re: Plugging and Abandonment Costs
Proposed Class I Injection Wells BDW 1 through 5

Dear Mr. McHardy:

As required, WSP has completed an estimate for the plugging and abandonment procedures and associated costs for the closure of Buckeye Partners, LP Woodhaven Terminal Wells BDW 1 through 5. Field Plugging procedures provided with this application were used as a basis for this estimate. This estimate reflects current rates applicable to the Midwest for oilfield services including workover rigs, oilfied supplies and cementing equipment. A summary of the major cost elements is provided below. Complete cost estimates are provided as attachments.

WELL NO.	P&A ESTIMATE
BDW-1	$109,895
BDW-2	$112,645
BDW-3	$112,645
BDW-4	$109,895
BDW-5	$112,645
Total	$557,725

Kind regards,

Brandon Schulte
Mgr. Permitting & Well Integrity

Enclosures

WSP USA
Suite 200
16200 Park Row
Houston, TX 77084

Tel.: +1 281 589-5900
Fax: +1 281 759-5164
wsp.com

BUDGET COST ESTIMATE

Client Name:	Buckeye Parterns, LP
Project Name:	P&A Cost Estimate Per Well (Wells 1 & 4)
Date:	09/05/2017
Project No.:	192065A
Estimate By:	Brandon Schulte
Reviewed By:	

Rev. 0

01	**MANAGEMENT COST**			
01	LABOR - OFFICE			$6,260
02	LABOR - FIELD			$4,800
03	EXPENSES			$2,200
04	MISCELLANEOUS			$0
05	SPECIAL LABOR & SERVICES			$0
06	SPECIAL EXPENSES			$0
	SUBTOTAL - 01 MANAGEMENT COST			**$13,260**
02	**SERVICES AND RENTALS**			
01	LOCATION			$0
02	RIG MOBILIZATION/DEMOBILIZATION			$0
03	DRILLING RIG			$0
04	FUEL			$0
05	DRILLING WATER			$0
06	DRILLING FLUIDS & SOLIDS CONTROL			$0
07	BITS, HOLE OPENERS, AND UNDERREAMERS			$0
08	RENTAL TOOLS, FISHING TOOLS AND SERVICES			$10,600
09	DIRECTIONAL DRILLING			$0
10	CEMENT, CEMENT SERVICES, HARDWARE			$22,500
11	LOGGING, PERFORATING & WIRELINE SERVICES			$0
12	CORING & CORE ANALYSIS			$0
13	WORKOVER RIG			$25,000
14	MUDLOGGING, RESERVOIR TESTING & ANALYSIS, ETC.			$0
15	STIMULATION, NITROGEN, PUMP TRUCKS			$0
16	CASING CREWS & TOOLS, EXT. TESTERS, SPEAR SERVICES			$5,500
17	WELDING			$1,250
18	TESTING , INSPECTION, & REPAIR SERVICES			$0
19	TRANSPORTATION			$5,000
20	HAULING, VACUUM TRUCKS & DISPOSAL			$0
21	MISCELLANEOUS MATERIALS & SUPPLIES			$0
22	MISCELLANEOUS SERVICES & EQUIPMENT			$10,500
23	SITE COMMUNICATIONS			$0
24	HEALTH, SAFETY & ENVIRONMENTAL			$0
25	CONSULTANTS AND SPECIAL SERVICES			$0
	SUBTOTAL - 02 SUBCONTRACTS, SERVICES, RENTALS			**$80,350**
03	**MATERIALS**			
01	CASING			$0
02	WELLHEAD EQUIPMENT			$0
03	COMPLETION EQUIPMENT			$7,500
	SUBTOTAL - 03 MATERIALS			**$7,500**
04	**TAXES**			
01	SALES TAX - LOCAL & STATE - INCLUDED IN LINE ITEMS			
02	CONTRACTOR'S TAX	0%		$0
	SUBTOTAL - 04 TAXES			**$0**
05	**PROJECT CONTINGENCIES**			
01	SERVICES	0%		$0
02	MATERIALS	0%		$0
	SUBTOTAL - 05 PROJECT CONTINGENCIES			**$0**
06	**PROJECT MANAGEMENT FEES**			
01	SERVICES	10%		$8,035
02	MATERIALS	10%		$750
	SUBTOTAL - 06 PROJECT MANAGEMENT FEES			**$8,785**
	TOTAL COST ESTIMATE			**$109,895**

BUDGET COST ESTIMATE

Client Name:	Buckeye Parterns, LP
Project Name:	P&A Cost Estimate Per Well (Wells 2, 3, & 5)
Date:	09/05/2017
Project No.:	192065A
Estimate By:	Brandon Schulte
Reviewed By:	

Rev. 0

01	**MANAGEMENT COST**			
01	LABOR - OFFICE			$6,260
02	LABOR - FIELD			$4,800
03	EXPENSES			$2,200
04	MISCELLANEOUS			$0
05	SPECIAL LABOR & SERVICES			$0
06	SPECIAL EXPENSES			$0
	SUBTOTAL - 01 MANAGEMENT COST			**$13,260**
02	**SERVICES AND RENTALS**			
01	LOCATION			$0
02	RIG MOBILIZATION/DEMOBILIZATION			$0
03	DRILLING RIG			$0
04	FUEL			$0
05	DRILLING WATER			$0
06	DRILLING FLUIDS & SOLIDS CONTROL			$0
07	BITS, HOLE OPENERS, AND UNDERREAMERS			$0
08	RENTAL TOOLS, FISHING TOOLS AND SERVICES			$10,600
09	DIRECTIONAL DRILLING			$0
10	CEMENT, CEMENT SERVICES, HARDWARE			$25,000
11	LOGGING, PERFORATING & WIRELINE SERVICES			$0
12	CORING & CORE ANALYSIS			$0
13	WORKOVER RIG			$25,000
14	MUDLOGGING, RESERVOIR TESTING & ANALYSIS, ETC.			$0
15	STIMULATION, NITROGEN, PUMP TRUCKS			$0
16	CASING CREWS & TOOLS, EXT. TESTERS, SPEAR SERVICES			$5,500
17	WELDING			$1,250
18	TESTING , INSPECTION, & REPAIR SERVICES			$0
19	TRANSPORTATION			$5,000
20	HAULING, VACUUM TRUCKS & DISPOSAL			$0
21	MISCELLANEOUS MATERIALS & SUPPLIES			$0
22	MISCELLANEOUS SERVICES & EQUIPMENT			$10,500
23	SITE COMMUNICATIONS			$0
24	HEALTH, SAFETY & ENVIRONMENTAL			$0
25	CONSULTANTS AND SPECIAL SERVICES			$0
	SUBTOTAL - 02 SUBCONTRACTS, SERVICES, RENTALS			**$82,850**
03	**MATERIALS**			
01	CASING			$0
02	WELLHEAD EQUIPMENT			$0
03	COMPLETION EQUIPMENT			$7,500
	SUBTOTAL - 03 MATERIALS			**$7,500**
04	**TAXES**			
01	SALES TAX - LOCAL & STATE - INCLUDED IN LINE ITEMS			
02	CONTRACTOR'S TAX		0%	$0
	SUBTOTAL - 04 TAXES			**$0**
05	**PROJECT CONTINGENCIES**			
01	SERVICES		0%	$0
02	MATERIALS		0%	$0
	SUBTOTAL - 05 PROJECT CONTINGENCIES			**$0**
06	**PROJECT MANAGEMENT FEES**			
01	SERVICES		10%	$8,285
02	MATERIALS		10%	$750
	SUBTOTAL - 06 PROJECT MANAGEMENT FEES			**$9,035**
		TOTAL COST ESTIMATE		**$112,645**

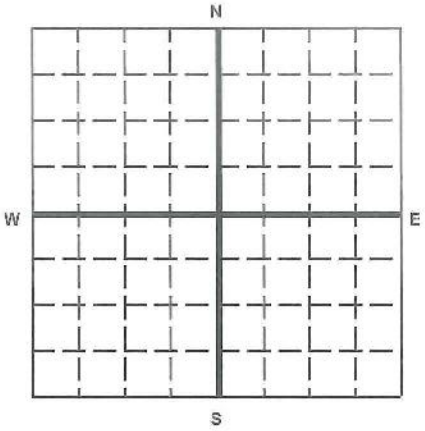
OMB No. 2040-0042 Approval Expires 12/31/2018

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Buckeye Woodhaven Terminal Woodhaven, MI	Buckeye Terminals, LLC

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Michigan	Wayne	

Surface Location Description

nw 1/4 of NE 1/4 of nw 1/4 of NE 1/4 of Section 22 Township 04S Range 10E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ____ ft. frm (N/S) ____ Line of quarter section and ____ ft. from (E/W) ____ Line of quarter section.

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name

WELL ACTIVITY
- [x] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number BDW-1

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
20	133		50	Driven
13 3/8	61		470	17 1/2
9 5/8	40		1310	12 1/4
5 1/2	15.5		3490	8 3/4

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8 3/4	4.95 (ID)	4.95 (ID)	4.95 (ID)			
Depth to Bottom of Tubing or Drill Pipe (ft.	3730	3250	450	250			
Sacks of Cement To Be Used (each plug)	132	6.2	25	31.1			
Slurry Volume To Be Pumped (cu. ft.)	156	7.4	29.4	36.8			
Calculated Top of Plug (ft.)	3270	3200	250	0			
Measured Top of Plug (if tagged ft.)	3270	3200	250	0			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	H	H	H	H			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
3730	3490		

Estimated Cost to Plug Wells

$109,895

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Carl A. Ostach, VP Domestic Field Operations	Carl A. Ostach	12/15/17

Paperwork Reduction Act Notice

The public reporting and record keeping burden for this collection of information is estimated to average 4.5 hours for operators of Class I hazardous wells, 1.5 hours for operators of Class I non-hazardous wells, 3 hours for operators of Class II wells, and 1.5 hours for operators of Class III wells.
Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to the collection of information; search data sources; complete and review the collection of information; and, transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15.
Please send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques to Director, Office of Environmental Information, Collection Strategies Division, U.S. Environmental Protection Agency (2822), Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Officer for EPA. Please include the EPA ICR number and OMB control number in any correspondence.

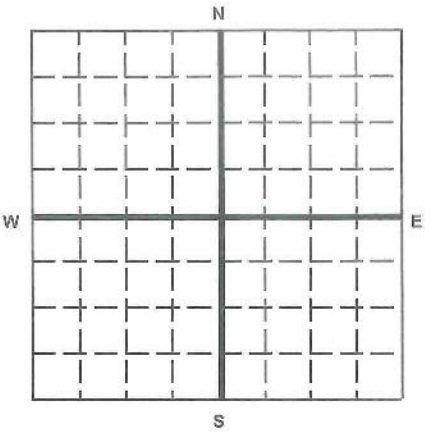
OMB No. 2040-0042 Approval Expires 12/31/2018

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Buckeye Woodhaven Terminal Woodhaven, MI	Buckeye Terminals, LLC

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Michigan	Wayne	

Surface Location Description

nw 1/4 of NE 1/4 of nw 1/4 of NE 1/4 of Section 22 Township 04S Range 10E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ____ ft. frm (N/S) ____ Line of quarter section
and ____ ft. from (E/W) ____ Line of quarter section.

TYPE OF AUTHORIZATION

- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name

WELL ACTIVITY

- [x] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number BDW-2

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
20	133		50	Driven
13 3/8	61		470	17 1/2
9 5/8	40		1310	12 1/4
5 1/2	15.5		3490	8 3/4

METHOD OF EMPLACEMENT OF CEMENT PLUGS

- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8 3/4	4.95 (ID)	4.95 (ID)	4.95 (ID)			
Depth to Bottom of Tubing or Drill Pipe (ft	3730	3250	450	250			
Sacks of Cement To Be Used (each plug)	152	7.2	25	31.1			
Slurry Volume To Be Pumped (cu. ft.)	180	8.5	29.4	36.8			
Calculated Top of Plug (ft.)	3270	3200	250	0			
Measured Top of Plug (if tagged ft.)	3270	3200	250	0			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	H	H	H	H			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
3730	3490		

Estimated Cost to Plug Wells

$112,645

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Carl A. Ostach, VP Domestic Field Operations	Carl G. Ostach	12/15/17

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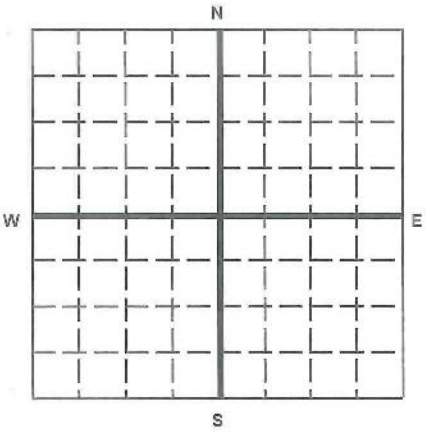

State	County	Permit Number
Michigan	Wayne	

Surface Location Description

NE 1/4 of NE 1/4 of SW 1/4 of NE 1/4 of Section 22 Township 04S Range 10E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ____ ft. frm (N/S) ____ Line of quarter section and ____ ft. from (E/W) ____ Line of quarter section.

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name

WELL ACTIVITY
- [x] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number BDW-3

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
20	133		50	Driven
13 3/8	61		470	17 1/2
9 5/8	40		1310	12 1/4
5 1/2	15.5		3490	8 3/4

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8 3/4	4.95 (ID)	4.95 (ID)	4.95 (ID)			
Depth to Bottom of Tubing or Drill Pipe (ft	3730	3250	450	250			
Sacks of Cement To Be Used (each plug)	152	7.2	25	31.1			
Slurry Volume To Be Pumped (cu. ft.)	180	8.5	29.4	36.8			
Calculated Top of Plug (ft.)	3270	3200	250	0			
Measured Top of Plug (if tagged ft.)	3270	3200	250	0			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	H	H	H	H			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
3730	3490		

Estimated Cost to Plug Wells

$112,645

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Carl A. Ostach, VP Domestic Field Operations	Carl A. Ostach	12/15/17

EPA Form 7520-14 (Rev. 12-11)

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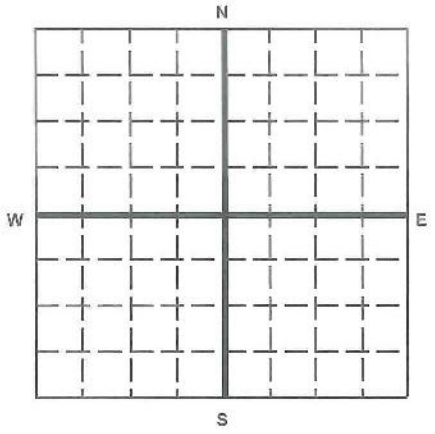
OMB No. 2040-0042 Approval Expires 12/31/2018

United States Environmental Protection Agency
Washington, DC 20460

PLUGGING AND ABANDONMENT PLAN

Name and Address of Facility	Name and Address of Owner/Operator
Buckeye Woodhaven Terminal Woodhaven, MI	Buckeye Terminals, LLC

Locate Well and Outline Unit on Section Plat - 640 Acres



State	County	Permit Number
Michigan	Wayne	

Surface Location Description

NE 1/4 of NE 1/4 of S 1/4 of NE 1/4 of Section 22 Township 04S Range 10E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ____ ft. frm (N/S) ____ Line of quarter section and ____ ft. from (E/W) ____ Line of quarter section.

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name

WELL ACTIVITY
- [x] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number BDW-4

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
20	133		50	Driven
13 3/8	61		470	17 1/2
9 5/8	40		1310	12 1/4
5 1/2	15.5		3490	8 3/4

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8 3/4	4.95 (ID)	4.95 (ID)	4.95 (ID)			
Depth to Bottom of Tubing or Drill Pipe (ft	3730	3250	450	250			
Sacks of Cement To Be Used (each plug)	132	6.2	25	31.1			
Slurry Volume To Be Pumped (cu. ft.)	156	7.4	29.4	36.8			
Calculated Top of Plug (ft.)	3270	3200	250	0			
Measured Top of Plug (if tagged ft.)	3270	3200	250	0			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	H	H	H	H			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
3730	3490		

Estimated Cost to Plug Wells

$109,895

Certification

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. (Ref. 40 CFR 144.32)

Name and Official Title *(Please type or print)*	Signature	Date Signed
Carl A. Ostach, VP Domestic Field Operations	Carl A. Ostach	12/15/17

EPA Form 7520-14 (Rev. 12-11)

Paperwork Reduction Act Notice

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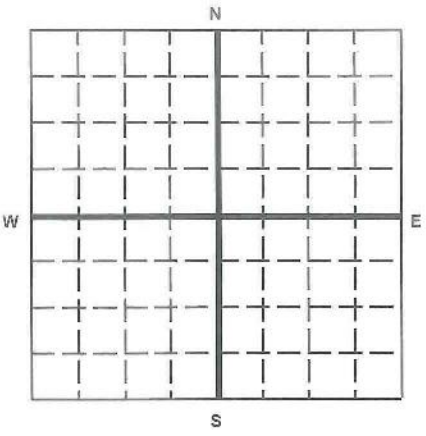

State	County	Permit Number
Michigan	Wayne	

Surface Location Description

NE 1/4 of NE 1/4 of SW 1/4 of NE 1/4 of Section 22 Township 04S Range 10E

Locate well in two directions from nearest lines of quarter section and drilling unit

Surface Location ___ ft. frm (N/S) ___ Line of quarter section
and ___ ft. from (E/W) ___ Line of quarter section.

TYPE OF AUTHORIZATION
- [x] Individual Permit
- [ ] Area Permit
- [ ] Rule

Number of Wells 1

Lease Name

WELL ACTIVITY
- [x] CLASS I
- [ ] CLASS II
  - [ ] Brine Disposal
  - [ ] Enhanced Recovery
  - [ ] Hydrocarbon Storage
- [ ] CLASS III

Well Number BDW-5

CASING AND TUBING RECORD AFTER PLUGGING

SIZE	WT (LB/FT)	TO BE PUT IN WELL (FT)	TO BE LEFT IN WELL (FT)	HOLE SIZE
20	133		50	Driven
13 3/8	61		470	17 1/2
9 5/8	40		1310	12 1/4
5 1/2	15.5		3490	8 3/4

METHOD OF EMPLACEMENT OF CEMENT PLUGS
- [x] The Balance Method
- [ ] The Dump Bailer Method
- [ ] The Two-Plug Method
- [ ] Other

CEMENTING TO PLUG AND ABANDON DATA:	PLUG #1	PLUG #2	PLUG #3	PLUG #4	PLUG #5	PLUG #6	PLUG #7
Size of Hole or Pipe in which Plug Will Be Placed (inche	8 3/4	4.95 (ID)	4.95 (ID)	4.95 (ID)			
Depth to Bottom of Tubing or Drill Pipe (ft	3730	3250	450	250			
Sacks of Cement To Be Used (each plug)	152	7.2	25	31.1			
Slurry Volume To Be Pumped (cu. ft.)	180	8.5	29.4	36.8			
Calculated Top of Plug (ft.)	3270	3200	250	0			
Measured Top of Plug (if tagged ft.)	3270	3200	250	0			
Slurry Wt. (Lb./Gal.)	15.6	15.6	15.6	15.6			
Type Cement or Other Material (Class III)	H	H	H	H			

LIST ALL OPEN HOLE AND/OR PERFORATED INTERVALS AND INTERVALS WHERE CASING WILL BE VARIED (if any)

From	To	From	To
3730	3490		

Estimated Cost to Plug Wells

$112,645

Certification

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